

# Hedysarum krassnovii B. Fedtsch. (Leguminosae) in China

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**Abstract** The presence of *Hedysarum krassnovii* B. Fedtsch. in China is reported. The taxon has been confused with the similar species *H. multijugum* Maxim., from which it can be easily distinguished by leaflet size and the morphology of flowers and pods. In addition, the two species differ in habitats, phenology, and geographical distribution.

**Key words** *Hedysarum krassnovii* B. Fedtsch., new record, China.

During a study of the taxonomy of Chinese *Hedysarum* L., I found that collections of *H. krassnovii* B. Fedtsch. from Xinjiang at the herbarium of Institute of Botany, the Chinese Academy of Sciences (PE), remained undetermined, and that specimens at the herbarium of Northwest Science and Technology University of Agriculture and Forestry (WUK) were misdetermined as *H. multijugum* Maxim. These two species are very similar in appearance; however, *H. krassnovii* had not been reported for China so far (Fedtschenko, 1948; Shue, 1998; Yang, 1983). I carefully examined the types of both species in the herbarium of the Komarov Botanical Institute of the Russian Academy of Sciences (LE), and carried out a comprehensive morphological study of the two species. I found that *H. krassnovii* can be easily distinguished from *H. multijugum* by the size of the leaflets and the morphology of flowers and pods; in addition, they differ in habitats, geographical distribution, and phenology (Table 1). The presence of *H. krassnovii* in Xinjiang, China, is here reported, and the type photo is shown in Fig. 1. Sketches of comparative flower morphology of the two species are shown in Fig. 2.

**Hedysarum krassnovii** B. Fedtsch. in Bull. Herb. Boiss., sér. 2, 4: 916. 1904; et in Fl. USSR, 13: 267. 1948; Grubov V. I., Pl. Centr. Asia, 8a: 58. 1988. Type: Southern slopes of Bedel Pass, Tian Shan, Issyk-Kul Region, Kirgizstan, 1886, A. Krassnow s.n. (holotype, LE!; isotype, LE!).

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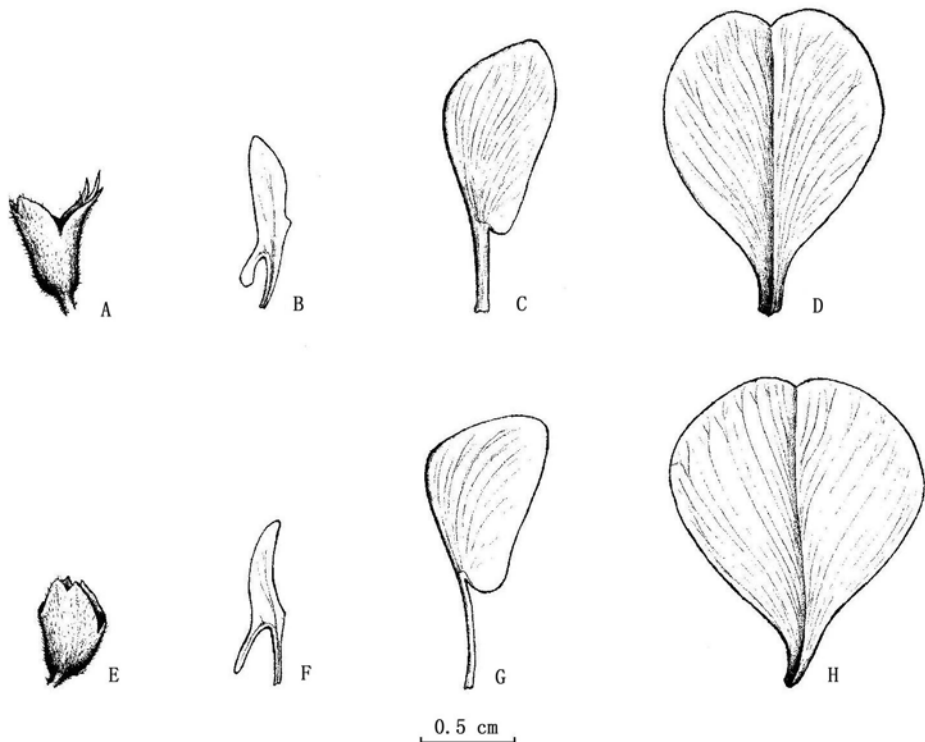
Subshrubs, 60–100 cm tall. Stems erect, many-branched, internodes short.



Fig. 1. Type of *Hedysarum krassnovii* B. Fedtsch. (A. Krassnow s.n., LE)

**Table 1** Comparison of *Hedysarum krassnovii* B. Fedtsch. and *H. multijugum* Maxim.

	<i>H. krassnovii</i>	<i>H. multijugum</i>
Leaflet size	3–9×3–7 mm	5–15×3–8 mm
Corolla	standard obovoid, apex emarginate, the sinus ca. 2 mm; wings narrowly lanceolate; keels almost semiorbicular or oblong	standard widely obovoid, apex emarginate, the sinus ca. 1 mm; wings narrowly triangular lanceolate; keels obtriangular
Calyx	bilabiate	obliquely campanulate, deeply parted at one side
Pod	1–2-loculed	2–3-loculed
Phenology	fl. Jun.–Jul., fr. Jul.	fl. Jun.–Aug., fr. Aug.–Sept.
Habitat	mountain slopes and roadsides at 2170–3000 m	mountain slopes, roadsides, margins of field, valley sides, sandy sites along river banks, mountain basins at 500 to 3900 m
Distribution in Xinjiang	W Xinjiang	S, SW and M Xinjiang



**Fig. 2.** Flower morphology of *Hedysarum krassnovii* B. Fedtsch. (drawn from Xizhi Xinjiang Team 1689 in WUK) and *H. multijugum* Maxim. (drawn from Shengtai 1570 in PE). A–D. *H. krassnovii*. A, calyx; B, wing; C, keel; D, standard. G–H, *H. multijugum*. E, calyx; F, wing; G, keel; H, standard.

Leaves pinnately compound, 9–20 cm long; stipules 2, lanceolate, brown, connate at base; leaflets 15–31, oval or almost round, small, 3–9×3–7 mm, slightly asymmetric, glabrous adaxially, sericeous abaxially, apex obtuse or slightly emarginate, base almost rounded or slightly cuneiform; petiolule ca. 1 mm long. Peduncles almost twice as long as the leaves; racemes sparsely arranged, 8–16-flowered. Flowers shortly stipitate, ca. 2 mm long; calyx

bilabiate, upper lobes two and lower lobes three, lobes almost equalling the tube; corolla purple, 11–18 mm long; standard obovoid, apex emarginate, the sinus ca. 2 mm, base cuneate; wings narrowly lanceolate, almost half as long as the keel; keel semiorbicular, shorter than standard. Pods 1–2-loculed, sericeous; locules suborbicular or oblong, 4–7×4–6 mm. Seeds reniform, 3.5–4.5×2.5–3.5 mm. Fl. Jun.–Jul. Fr. Jul.

General distribution: China. W Xinjiang (新疆): Tian Shan (天山), new record.

Habitats: Mountain slopes and roadsides at 2170 to 3000 m.

Representative specimens examined:

China. Xinjiang (新疆): Wuqia (乌恰), on the way from Wuqia City (乌恰市) to Jigen Village (吉根乡), Xizhi Xinjiang Team (西植新疆队) 1689, 1661 (WUK), 5–6 km east from Kangsu Town (康苏镇) to Wuqia City (乌恰市), A. J. Li & J. N. Zhu (李安仁, 朱家桢) 09685 (PE, LE), Bostanterak Village (波斯坦铁列克乡), A. J. Li & J. N. Zhu (李安仁, 朱家桢) 09846 (PE, LE).

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昆仑岩黄耆(豆科)在中国的分布

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**摘要** 报道了豆科Leguminosae昆仑岩黄耆*Hedysarum krassnovii* B. Fedtsch.在中国的分布。昆仑岩黄耆与近缘种红花岩黄耆*H. multijugum* Maxim.形态易混淆, 但以其小叶3–9×3–7 mm; 旗瓣倒卵形, 顶端凹陷约2 mm深; 翼瓣狭披针形; 龙骨瓣近半圆形或矩圆形; 花萼二唇形; 荚果具1–2节荚等性状易于区分。另外, 此二种的物候期、生境及地理分布亦有区别。

**关键词** 昆仑岩黄耆; 新记录; 中国